Bridging the Gap Between the Science and Service of HIV Prevention: Transferring Effective Research-Based HIV Prevention Interventions to Community AIDS Service Providers

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ABSTRACT

Objectives. AIDS service organizations (ASOs) rarely have access to the information needed to implement research-based HIV prevention interventions for their clients. We compared the effectiveness of 3 dissemination strategies for transferring HIV prevention models from the research arena to community providers of HIV prevention services.

Methods. Interviews were conducted with the directors of 74 ASOs to assess current HIV prevention services. ASOs were randomized to programs that provided (1) technical assistance manuals describing how to implement research-based HIV prevention interventions, (2) manuals plus a staff training workshop on how to conduct the implementation, or (3) manuals, the training workshop, and follow-up telephone consultation calls. Follow-up interviews determined whether the intervention model had been adopted.

Results. The dissemination package that provided ASOs with implementation manuals, staff training workshops, and follow-up consultation resulted in more frequent adoption and use of the research-based HIV prevention intervention for gay men, women, and other client populations.

Conclusions. Strategies are needed to quickly transfer research-based HIV prevention methods to community providers of HIV prevention services. Active collaboration between researchers and service agencies results in more successful program adoption than distribution of implementation packages alone. (*Am J Public Health*. 2000;90: 1082–1088)

Over the past decade, public health researchers have conducted trials that rigorously evaluated the effectiveness of theory-based behavioral interventions to assist persons in reducing their risk for contracting HIV infection. Reports of successful intervention outcomes have frequently been published in the scientific literature. The most common type of HIV prevention intervention studied in the behavioral research field involves small-group or workshop programs that provide participants with risk reduction information; use exercises to encourage, plan, and problem-solve behavior change; teach behavioral and self-management risk reduction skills; and reinforce clients' behavior change efforts. With conceptual foundations in social-cognitive theory,[1–5] this model has been shown to be effective in published outcome studies undertaken with gay men,[6–8] women,[9–11] adolescents,[12–14] and persons with sexually transmitted diseases.[15] A National Institutes of Health scientific review panel recently found the research evidence supporting the efficacy of these interventions to be so strong that it recommended that the interventions be used by service providers with their clients.[16]

Research on HIV prevention methods does not by itself prevent HIV infections; it can benefit the public health objective of curtailing the HIV epidemic only when the intervention methods used are effectively disseminated to organizations that provide prevention services in the field, and when service providers are successful in their efforts to implement the interventions. Very little scientific attention has been directed to the critical question of helping public health providers of AIDS prevention services successfully adopt interventions shown to be effective in the research arena.

Several factors limit the practical access by public health service providers to research-based HIV prevention interventions. Research articles are usually published in scholarly journals that may not be readily accessible to community-based organizations, AIDS service organizations (ASOs), and other providers of AIDS prevention services. Scientific articles describing the outcomes of research-based HIV prevention methods do not typically present intervention procedures at the level of detail needed for agencies to successfully replicate a program. Methods needed to adapt research-based HIV prevention interventions to local community needs or to tailor programs for different populations are also rarely discussed in journal articles. Perhaps for these reasons, program managers do not frequently turn to scientific journals for guidance in new program development.[17]

The question of how best to disseminate research-based interventions to practitioners is not unique to HIV prevention interventions. Studies have been undertaken for many years to identify factors that influence the adoption of new practice methods by health care providers. While brief continuing professional education programs can increase knowledge about new practice techniques, they often fail to change the actual

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practice behavior of the health care provider.[18–21] This suggests that providing information alone is likely to be a relatively ineffective dissemination strategy.

Continuing education programs have been more successful when professionals initially felt dissatisfied with the adequacy of present practice techniques, received intensive skills training in how to use a new method, perceived the new method to be efficacious, and received ongoing follow-up, support, and reinforcement from sources considered authoritative.[22–27] Similar types of training, technical assistance, and ongoing follow-up support may be needed for public health organizations to adopt and successfully use new HIV prevention methods shown effective in the research arena. The adoption of new mental health programs by social service agencies is enhanced by the involvement of multiple frontline staff (rather than just organizational leadership in training how to implement the program) and the provision of personalized follow-up consultation as the new program is being implemented.[28–31]

The Centers for Disease Control and Prevention (CDC) established a national policy in 1994 requiring states and jurisdictions that receive CDC funding to institute HIV prevention community planning groups.[32] One charge to these groups is to support local applied HIV prevention programs for which there is science-based evidence of effectiveness.[33] However, if frontline service organizations are to successfully offer science-based HIV prevention programs in their local communities, it is essential to identify methods that can facilitate the transfer of HIV prevention technology from the research arena to community-based providers.

A traditional approach for disseminating HIV prevention programs is distributing manuals, procedure guides, and protocols for interventions shown effective in HIV prevention research trials. Some dissemination efforts also include workshops that train staff in how to implement a science-based program at their agencies. However, we are aware of no research that has systematically studied what types of technical assistance approaches are most effective for facilitating the transfer of research-based HIV prevention interventions to ASOs.

This study reports on the outcomes of a randomized trial evaluating 3 technical assistance strategies for disseminating the social-cognitive HIV risk reduction intervention model, already shown to be efficacious in the research arena, to ASOs. One group of ASOs was provided with detailed procedure manuals, materials, and instructional guides describing how to implement the HIV risk reduction intervention for gay men and for women in their community. A second group of organizations received the same materials followed by an intensive 2-day workshop that taught ASO HIV prevention staff how to implement the intervention. The final group of ASOs received the same program materials and the staff training workshop, but these were followed by a series of 6 monthly telephone consultation calls with experienced HIV prevention researchers to problem-solve issues related to implementing the research-based intervention. The study examined subsequent adoption of the research-based intervention by ASOs for use with clients in their communities. In this way, the study sought to identify the type of technical assistance package most effective for promoting successful transfer of the research-based intervention to community providers of HIV prevention services.

Methods

Selection of ASOs

To obtain a national sample of ASOs, we identified from 1995 census data all US cities with metropolitan populations of at least 80 000 persons. Cities in Wisconsin, California, and New York were excluded because HIV prevention research centers in these states already had extensive ongoing technical assistance programs with local ASOs and we did not want to confound the effects of these existing programs with the current study's activities. Contact was made with each state's health department to identify which nongovernmental organization in each city was the primary provider of HIV prevention services to at least 2 target populations in its community: men who have sex with men (MSM) and women.

A total of 83 ASOs were invited to participate in the study, and 77 agreed. Three ASOs that entered the study later dropped out, generally owing to vacancies in leadership positions. Between 1 and 3 ASOs were included from each state, depending primarily on the number of cities in the state that met the population size criterion and the presence of an organization that provided HIV prevention services to the 2 target populations. ASOs included in the study were located in cities that had metropolitan populations ranging from 108 700 to 5 734 847 (median = 970 421).

Assessment Data Collection

Data on ASO organizational characteristics and on HIV prevention services provided by each ASO in its community were obtained during an on-site assessment visit. During the visit, structured interviews were conducted with the organization's prevention services director. The interviews followed a standardized protocol and elicited the following information.

Organizational resources and characteristics. For each ASO, the total number of staff and volunteers and the number of staff and volunteers who worked specifically in HIV prevention were ascertained. Information concerning sources and levels of current-year funding for the organization's HIV prevention activities was requested. The length of the prevention staff's tenure in their positions was also assessed.

Target populations served by ASO HIV prevention programs. The prevention services director was asked to identify HIV prevention programs undertaken by the ASO in the past 6 months for MSM and women.

Use of research-based social-cognitive HIV risk reduction group programs for MSM and women. Central to the intent of this research is the reliable measurement of whether, and how often, ASOs in the study offered to clients in their communities HIV prevention interventions of the kind shown to be effective in the research literature. This required defining the key common elements of research-based social-cognitive HIV risk reduction interventions as reported in the scientific literature. To do so, we reviewed published reports and available facilitator manuals for social-cognitive HIV risk reduction group interventions shown to be effective in producing reductions in sexual risk behavior in randomized outcome trials undertaken with gay men and with women.[6–11,15]

All of these successful research-based interventions had certain common elements. All involved at least 4 hours of intervention contact time with clients, and all had a set of 7 common content or activity elements: (1) risk education; (2) group activities to help clients identify causes or "triggers" of their high-risk sexual behavior; (3) condom use practice; (4) role-playing of situations requiring sexual communication, negotiation, or assertiveness skills; (5) problem-solving how to handle risk situations; (6) discussion of risk issues in one's personal relationships; and (7) behavior change maintenance strategies. These core elements parallel constructs of social-cognitive theory presumed to mediate behavior change.[1–5]

To assess the extent to which ASOs used cognitive-behavioral small-group risk reduction programs of this kind at baseline, the prevention services director was asked (1) whether or not small-group programs of at least 4 hours' duration and including all of these core elements had been offered to MSM or women in the past 6 months; (2) if so, how many times the program was offered in the

past 6 months; and (3) whether a program including all of these elements had been offered to members of any other client populations.

Dissemination Intervention Procedures

Because ASOs located in the same state are likely to communicate extensively with each other about new programs, all ASOs in a state were randomized together to 1 of the study's 3 dissemination intervention conditions, as follows.

Technical assistance manuals (n = 26 ASOs). Detailed manuals, supporting materials, and facilitator guides were developed to provide technical assistance to ASO staff concerning the rationale, implementation, and conduct of group social-cognitive HIV risk reduction interventions. Separate manuals were developed for programs targeting MSM and women. The manuals were professionally produced by staff experienced in designing HIV prevention program curricula. To ensure that the manuals correctly conveyed essential procedures used in research-based HIV prevention interventions, each was reviewed by a panel of investigators who had directed published HIV prevention intervention outcome studies.

The manuals reviewed principles of social-cognitive behavior change theory applied to the problem of HIV risk reduction and described the rationale for small-group risk reduction interventions. The bulk of the manual provided detailed instruction, guidance, and written technical assistance concerning how to implement group or workshop programs lasting 4 hours or longer and using the 7 key elements of social-cognitive theory described earlier. Separate sections of the manual covered techniques for handling AIDS risk education in group sessions, group activities to help clients identify their personal risk "triggers," group techniques for practice-based client training in correct condom use, role-play practice of situations requiring sexual negotiation skills, group risk reduction problem-solving activities, group discussion about risk issues arising in one's personal relationships, and behavior change maintenance self-management techniques. The manuals also included recommendations concerning settings for intervention implementation and strategies for "marketing" prevention programs in the community.

The intervention manual for programs directed at MSM and the program manual for women covered the same group procedures but employed examples, described sexual practices, and addressed social-contextual risk issues specific to each population. Each ASO also received a videotape illustrating core elements of the intervention as well as selected reprints of published research articles describing the interventions for gay or bisexual men[6–8] and for women.[9–11]

Technical assistance manuals plus on-site ASO staff training workshop (n = 22 ASOs). ASOs in this condition received the manuals described above. However, their staffs also received 2-day training workshops conducted on-site at each organization.

Three-member teams from our research center conducted the ASO staff training workshops; the sessions were attended by managers, frontline staff, and volunteers who conducted HIV prevention programs for MSM and for women in the city served by the ASO. An average of 12 personnel at each ASO (range = 7–21) attended the training workshops. Workshops were conducted by research staff members experienced in delivering social-cognitive small-group HIV prevention interventions for MSM, women, and other populations. The training team members had an average of 5 years of experience (range = 4–7 years) in carrying out this intervention model in research studies of HIV prevention. To ensure fidelity and consistency, the research teams followed a detailed protocol for conducting the workshops.

Workshops began with interaction between ASO staff and the research team concerning current programs, community needs, and risk issues regarding women and gay men from the perspective of ASO staff. The first day then focused on implementing the research-based intervention for MSM; the second training day provided training to ASO staff in delivering the intervention to women. On each training day, the research team provided instruction in how the intervention was undertaken in research trials that included discussion about the intervention with ASO staff, modeling of key intervention procedures, and staff training exercises intended to allow ASO staff to gain experience implementing elements of the research-based intervention. Thus, ASO staff in the workshop condition received intensive practice-based skills training in conducting the intervention. The training also included discussion about tailoring the intervention to meet the needs of women and gay men clients in their own community, overcoming barriers to program implementation, identifying settings for program implementation, and learning techniques to make the intervention attractive to clients.

Technical assistance manuals plus on-site ASO staff training workshops and ongoing telephone consultation in intervention delivery (n = 26 ASOs). Staff of the ASOs assigned to this condition received the manuals and attended the same training workshop just described. However, the on-site staff training workshop for ASOs was followed by a series of 6 monthly telephone consultation calls between key personnel of the ASO and senior investigators of the research team who had directed HIV prevention research trials. Consultation calls began about 2 weeks after the staff training workshop. While some calls were one-on-one between the HIV prevention research investigator and the ASO's prevention director, most were conference calls in which the research investigator talked with the ASO director and with key field staff of the organization involved in delivering prevention services. The mean number of follow-up consultation calls provided was 5.4 (range = 2–6), with each call lasting an average of 26 minutes (range = 5–82 minutes).

Conference calls followed a protocol in which the investigator inquired about the ASO's goals, successes, or problems encountered in planning implementation of the research-based intervention. Depending on the ASO's priorities, interests, and needs, consultation was then provided in the following areas: (1) questions about the intervention that arose following the staff training workshop; (2) assistance in planning local implementation of the intervention by the ASO; (3) tailoring of the intervention to meet community needs, ASO priorities, and resource constraints; (4) review of the intervention's core elements; and (5) problem-solving questions about intervention implementation and discussion of successes and problems encountered. Because ASOs had different experience levels, resources, and repertoires of overall prevention services, consultation was tailored to the needs of each organization.

Six- and 12-Month Follow-Up Assessments

Six and 12 months after the ASO staff training workshops were conducted—and at the same point for ASOs in the manuals-only condition—on-site assessment visits were again made to each ASO. The same data collection procedures used at baseline were also used at follow-up. Research staff who made baseline and follow-up assessment data collection visits were never the same staff who conducted staff training workshops or consultation calls. To avoid the possibility of bias resulting from an assessment staff member's repeated visits to the same ASO, the same research staff never visited a given ASO more than once for data collection.

Statistical Procedures

Differences in the rates of adoption across dissemination conditions were based

TABLE 1—Characteristics of the 74 AIDS Service Organizations (ASOs)

Characteristic	Range	Median
Population of city in which ASO is located, metropolitan statistical area[a]	108 700–5 734 847	979 116
Total no. of ASO staff	0–240	16.5
No. of ASO prevention staff	0–51	5.0
No. of ASO prevention volunteers	0–290	25.5
Annual ASO budget for HIV prevention programs[b]	$4 500–$1 080 000	$171 000
Time ASO HIV prevention services director has held position, y	0–10	2.0
Time ASO HIV prevention staff members have held positions, y	0–20	1.0

[a]From American Map Corporation.[34]
[b]Figure includes funding earmarked for HIV prevention services from each ASO's 4 largest providers of prevention funds; information provided by 65 of 74 ASOs.

on data provided by each director on whether the research-based intervention had been offered to client populations in its community during the 6 months before the baseline, at the 6-month follow-up interview, or at the 12-month follow-up interview. We examined separately whether the ASO had offered the intervention to gay men, to women, and to members of any client population at each assessment point. Significance of change between conditions was determined by logistic regression, where the outcome variable was the indicator of adoption of the research-based intervention for a given population at follow-up, and where predictors included a baseline indicator for the same population and a categorical variable for dissemination condition. Pairwise contrasts among all 3 research conditions were assessed for significant differences in rates of adoption.

A second analysis compared ASOs in each condition with respect to how often the research-based HIV prevention intervention had been offered to each client population. Because of skewed distributions in this variable, a nonparametric analysis method, the Kruskal-Wallis test for equality of mean ranks, was used to assess the significance of intergroup differences in change from baseline to the follow-up points. Two-tailed pairwise comparison tests were performed to determine which groups differed in a statistically significant manner from one another. One set of analyses focused on changes of frequency between baseline and 6-month follow-up assessment. A second group of tests compared the frequency with which the intervention was offered in the 6 months before baseline with the frequency with which it was offered in the 6 months before the 12-month follow-up.

Results

Characteristics of the ASOs

The ASOs had a median staff size of 16.5 personnel (range = 0–240) and a median of 5 personnel (range = 0–51) who devoted their effort to HIV prevention services (Table 1). Many of the organizations also had large numbers of part-time prevention service volunteers (range = 0–290, median = 25.5). The annual ASO HIV prevention program budget ranged from $4500 to $1 080 000 (median = $171 000). The median position tenure of an ASO prevention services director was 2 years, while HIV prevention frontline staff members had held their positions for an average of 1 year.

To examine whether randomization was successful in assigning demographically comparable ASOs to dissemination conditions, we assessed whether ASOs assigned to the 3 conditions were comparable at baseline. ASOs in the 3 dissemination conditions did not differ significantly from one another in median population of the city in which they were located, size of staff or number of volunteers, or median length of position tenure by the prevention director or frontline staff members (all $P > .15$). ASOs assigned to the dissemination condition that included telephone consultation had slightly higher prevention program budgets than the ASOs in the 2 other conditions, but the average for each group fell within $70 000 of the overall sample median at baseline.

TABLE 2—Percentage of AIDS Service Organizations (ASOs) That Offered the Research-Based Model to Its Clients Within the First 6 Months or Within 12 Months of the Intervention, by Experimental Condition

	TA Manuals Only			TA Manuals and Staff Training Workshops			TA Manuals, Staff Training Workshops, and Ongoing Consultation		
Group Offered the Research-Based Intervention	Baseline (n = 26)	6-Mo Follow-Up (n = 26)	12-Mo Follow-Up (n = 26)	Baseline (n = 22)	6-Mo Follow-Up (n = 22)	12-Mo Follow-Up (n = 22)	Baseline (n = 26)	6-Mo Follow-Up (n = 24)	12-Mo Follow-Up (n = 25)
Men who have sex with men	15.4	23.1	34.6	0.0	22.7	36.4	3.8	54.2[a]	60.0[b]
Women	11.5	7.7	23.1	0.0	27.3	45.5	0.0	25.0	36.0
Any client population	15.4	30.8	50.0	0.0	40.9	59.1	3.8	54.2[b]	75.0[b]

Note. TA = technical assistance. Data could not be collected at 2 ASOs that had director vacancies at the 6-month follow-up and at 3 ASOs that had director vacancies at the 12-month follow-up.
[a]A significant ($P < .05$) difference was found between the indicated group and both of the other groups at the same follow-up point.
[b]A significant ($P < .05$) difference was found between the indicated group and the TA Manuals Only group at the same follow-up point.

TABLE 3—Mean Frequency (Standard Deviation) With Which AIDS Service Organizations (ASOs) Offered the Research-Based Intervention to Their Clients in the Past 6 Months, by Experimental Condition

Group Offered the Research-Based Intervention in the Past 6 Mo	TA Manuals Only			TA Manuals and Staff Training Workshops			TA Manuals, Staff Training Workshops, and Ongoing Consultation		
	Baseline (n = 26)	6-Mo Follow-Up (n = 26)	12-Mo Follow-Up (n = 26)	Baseline (n = 22)	6-Mo Follow-Up (n = 22)	12-Mo Follow-Up (n = 22)	Baseline (n = 26	6-Mo Follow-Up (n = 24)	12-Mo Follow-Up (n = 25)
Men who have sex with men	0.6 (1.6)	0.9 (2.1)	0.6 (1.6)	0.0 (0)	1.4 (4.0)	2.7 (6.7)[a]	0.1 (0.4)	1.5 (1.9)[a]	1.9 (5.4)[a]
Women	1.3 (5.9)	0.2 (0.8)	0.5 (1.2)	0.0 (0)	1.0 (2.7)[a]	2.2 (4.5)	0.0 (0)	1.3 (3.5)[a]	2.9 (7.6)
Any client population	2.5 (7.4)	2.8 (8.5)	1.2 (2.1)	0.0 (0)	4.0 (7.5)[a]	5.6 (11.9)[a]	0.1 (0.4)	3.8 (6.0)[a]	6.0 (13.1)[a]

Note. TA = technical assistance. Two ASO extreme outliers were excluded from the analyses. However, significance patterns were the same whether extreme outliers were included or excluded.
[a]A significant ($P < .05$) difference was found between the indicated group and the TA Manuals Only group at the same follow-up point.

Differences in Adoption of the Research-Based Intervention Among ASOs in Each Dissemination Condition

Table 2 shows the percentage of ASOs in each dissemination condition that had adopted the research-based intervention for gay men, for women, and for any client population in its community. Fewer than 15% of the ASOs had offered the research-based intervention during the 6 months before the baseline assessment. Among ASOs in the manuals-only condition and the condition that included manuals and staff training workshops, there was some increase in the percentage offering the intervention for gay men at the 2 follow-up points. However, the greatest adoption of the research-based intervention was found among ASOs that had received manuals, staff training workshops, and also telephone consultation. The percentage of ASOs in this condition that offered the intervention for gay men increased from 3.8% at baseline to 54.2% at 6-month follow-up and 60% at 12-month follow-up. The adoption rate among ASOs that received telephone consultation was significantly greater than the adoption rates of both other groups at the 6-month follow-up and greater than the adoption rate of the manuals-only group at 12-month follow-up.

With respect to use of the research-based intervention for women in their communities, 45.5% of ASOs that had received manuals and staff training workshops and 36% of ASOs that had received manuals, workshops, and telephone consultation adopted the intervention by 12-month follow-up, compared with only 23.1% of ASOs in the manuals-only condition. However, these differences across the 3 conditions were not statistically different.

Finally, ASOs that received manuals, the staff training workshop, and telephone consultation were more likely than ASOs that received only manuals to offer the research-based intervention for any client population at both follow-up points. Seventy-five percent of ASOs in the condition that included telephone consultation had offered the research-based intervention to some client population in its community at the 12-month follow-up point, compared with 50% of ASOs in the manuals-only group.

Differences in How Frequently ASOs in Each Dissemination Condition Offered the Research-Based Intervention to Clients in Their Communities

Table 3 shows the mean number of times that ASOs in each of the 3 conditions offered the intervention during the 6-month period before each assessment point. ASOs that received the dissemination program combining manuals, staff training workshops, and telephone consultation offered the research-based intervention for gay men more frequently at both follow-up points than ASOs in the manuals-only condition. At the 6-month follow-up, ASOs that had received the manuals, workshops, and telephone consultation offered the intervention an average of 1.5 times, compared with 0.9 times for ASOs in the manuals-only condition. At 12-month follow-up, the intervention was offered to gay men an average of 1.9 times by ASOs that had received manuals, workshops, and telephone consultation, compared with 0.6 times for ASOs in the manuals-only condition.

With respect to programs for women, both the program including manuals plus staff training workshops and the program including manuals, staff training workshops, and telephone consultation produced more frequent use of the intervention than the manuals-only condition at the 6-month follow-up. The groups did not differ significantly from one another in how frequently they offered the intervention to women at the 12-month follow-up.

Finally, we examined how frequently ASOs offered the research-based intervention to any client population in their community. At the 6-month follow-up, ASOs that had received the manuals and staff training workshops or the manuals, workshops, and telephone technical assistance consultation offered the intervention to any client population more frequently (mean = 4.0 and 3.8 times, respectively) than ASOs that had received only the manuals (mean = 2.8 times). At the 12-month follow-up assessment, ASOs that had received manuals and the staff training workshop offered the intervention more frequently (mean = 5.6 times) than ASOs that had received only manuals (mean = 1.2 times). ASOs that had received the dissemination program that included manuals, staff training workshops, and consultation also offered the intervention more often (mean = 6.0 times) than ASOs that had received only manuals.

Was Adoption of the Research-Based Intervention Influenced by Organizational Characteristics of the ASOs?

There was considerable heterogeneity among the ASOs in size of staff, population of city in which the ASO is located, annual budget for HIV prevention programs, and mean length of position tenure of the prevention service directors and also of the frontline HIV prevention staff. Analyses were performed to examine whether differences in ASO prevention program staff size or size of the prevention program budget might have a confounding influence on adoption outcomes observed among the dissemination treatment conditions. Covariates for the size of an ASO's prevention budget and its number of staff were introduced into the main outcome models. Results of the covariate analysis did not alter the effect of condition on adoption of the research-based intervention from the results of the main analysis.

Discussion

Research evaluating the impact of public health interventions can benefit the public health goals only when research findings concerning effective approaches are successfully transferred to service providers that carry out programs in their communities. Because HIV is an infectious disease epidemic, it is especially important to transfer effective programs as quickly as possible to community providers of HIV prevention services. While many studies have evaluated the effectiveness of HIV prevention interventions in controlled research trials, the question of how best to then translate what is known about effective programs to community service providers has received almost no research attention.

Research articles describing the effectiveness of HIV prevention interventions rarely include enough procedural detail to permit replication of the intervention by service providers. Our findings indicate that even when elaborated into detailed and "user friendly" intervention delivery procedure manuals, this resource alone was much less effective in helping AIDS service organizations adopt the research-based intervention than approaches that also provided intensive staff training in the delivery of the intervention as well as individualized and tailored technical assistance telephone consultation to the organization. In most cases, the dissemination approach that provided 6 telephone consultation sessions between the service organization's personnel and an HIV prevention research consultant after the staff training workshop produced higher rates of adoption and more frequent use of the intervention. The topics most often raised by ASOs during follow-up consultation calls involved additional questions that arose as interventions were being implemented, locating new funding sources to support program expansion, marketing new HIV programs in client communities, and explaining new programs to community stakeholders, other community-based organizations, and funding agencies. This suggests that dissemination efforts will be most successful when they occur in the context of ongoing relationships between researchers and service providers, and when staff-training technical assistance is followed by opportunities to plan and problem solve how to implement the research-based intervention.

These findings raise several public health policy issues related to the translation of research-based interventions to community service providers. Historically, most research studies have been considered successfully completed when their main findings are published. However, if research findings are to be used by providers, it is essential to then develop technology transfer mechanisms that allow service organizations to successfully implement the interventions. This can begin with the development of compendiums of interventions for which there is scientific evidence of effectiveness.[35] However, it will also require the development of funding mechanisms to support dissemination activities, interagency cooperation at the federal level for determining what entities should support this work, and the involvement of both governmental and nongovernmental agencies in providing technical assistance. Dissemination efforts to rapidly move science-based programs to the field will require significant allocation of training and consultation resources. However, without it, service providers are unlikely to benefit from the scientific advances now being made in the field of HIV prevention research.

Data concerning adoption of the research-based intervention relied on information that was collected during interviews with the prevention services director of each ASO. Because measurement of the research-based intervention was defined in terms of specific content, procedure, and program duration criteria, the reliability and validity of intervention adoption reports are likely to be high. However, this study relied on agency reports about the programs they offered. We were not able to independently corroborate these reports. In addition, while we measured adoption of the research-based intervention, we did not measure the quality of the programs that were offered by the ASOs beyond determining whether they included the core elements used to define the intervention model.

This research focused attention primarily on HIV prevention interventions undertaken with 2 client populations, women and MSM, and it focused on interventions designed to promote change in sexual risk practices. We did not address the dissemination of risk reduction interventions developed specifically for injection drug users or client populations other than MSM and women. It will also be important for future projects to target the transfer of risk reduction interventions for injection drug users to agencies that provide services to drug users. We chose small-group risk reduction interventions for dissemination because a large body of research literature has shown that this type of intervention is effective. However, other successful HIV prevention approaches—including one-on-one counseling and community-level interventions—should also be the subject of technology transfer projects. It will be especially useful if researchers more routinely and systematically collect data on the costs of delivering interventions. By doing so, service agencies will later be in a position to anticipate the resources needed to adopt new programs or to choose programs consistent with their organizational capacity.

Although adoption by ASOs of the research-based intervention resulted in positive outcomes for all client populations examined, ASOs used the intervention less often with women than with other client groups, even though the small-group HIV prevention intervention model that was disseminated has been shown to be effective in research studies undertaken with women.[36] This may be because many ASOs have more experience undertaking HIV prevention programs for gay men, pointing to the need for more intensive technical assistance in the area of HIV prevention interventions for women.

As advances in research continue to be made in our scientific understanding of interventions that can assist persons in reducing HIV risk practices, it is equally important to study and develop methods to translate these research advances to HIV prevention service providers. This investigation sheds light on the impact of some approaches to HIV prevention research technology transfer. However, many important new questions require continued investigation. These include determining the effectiveness of research-based HIV prevention interventions when they are offered by service providers in the field as opposed to researchers in a study, determining the satisfaction of service provider staff and clients with these research-based interventions, and emphasizing the bidirectional process of technology transfer in which successful research-based models are transferred to community service providers but in which the needs, priorities, and resource constraints of community providers also influence the kinds of HIV prevention models that are being studied in the research arena. □

Contributors

J. A. Kelly was principal investigator of the study, and A. M. Somlai directed its overall implementation. W. J. DiFranceisco and T. L. McAuliffe performed the data analysis. T. G. Heckman and D. R. Holtgrave developed the assessment measures, A. M. Somlai and L. L. Otto-Salaj supervised consultation activities, and K. L. Hackl and D. Rompa coordinated activities of the training teams. All of the authors contributed to the writing of the manuscript.

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